

Date: Wednesday, 22/10/2008 8:26:36 AM  
 User: Julie Dawson

## Process Sheet

Customer : CU-DAR001 Dart Helicopters Services Drawing Name : 407 HIGH AFT X-TUBE ASSEMBLY  
 Job Number : 41042  
 Estimate Number : 10528  
 P.O. Number :  
 This Issue : 22/10/2008 S.O. No. :  
 Prsht Rev. : NC  
 First Issue : 11 Type : CROSSTUBES  
 Previous Run : 42786  
 Written By :  
 Checked & Approved By : JUD 08.10.22  
 Comment : Est Rev:C 05.09.02 Add holes for compatibility with Bell  
 Skidtubes KJ/JLM  
 Est Rev:D Added Magnobond,Rubber Cushion & Clamps  
 07-02-19 JLM  
 Part Number : D407667205  
 Drawing Number : D407-667-245  
 Project Number : N/A  
 Drawing Revision : 5 F 2 08.11.17  
 Material :  
 Due Date : 07/11/2008 Qty: 1 Um: Each  
 \*\*\*\*CHANGE TO CHG 005 - IF USING D2894-1 B35578 OR  
 GREATER\*\*\*\*  
 Est Rev:E 08-05-22 add comment in seq. 6 and QC15 and  
 QC5 DD verified by:EC  
 Est Rev:F 08-06-12 add comment in seq. 24 DD verified  
 by:EC  
 Est Rev:G 08-08-19 revE as per dwg DD verified by:EC

## Additional Product

Job Number:



Seq. #: Machine Or Operation: Description :

1.0 DC DOCUMENT CONTROL



JUD 08.8.26



Comment: DOCUMENT CONTROL

Photocopy bluefile and create labels as per PPP D407-667-205 CHG006

08/12/03

2.0 PACKAGING 1 PACKAGING RESOURCE #1



Comment: PACKAGING RESOURCE #1

3.0 D407667205TRN Crosstube Turning Detail



Comment: Qty.: 1.0000 Each(s)/Unit Total : 1.0000 Each(s)

CROSSTUBE TURNING DETAIL

batch B43206

8-11-6

8-11-6

4.0 BENDING BENDING MACHINE SKIDTUBES



Comment: LANDING GEAR RESOURCE 1

1-Bend tube as per Dwg D407-667-245 using CNC bender program 407 Aft and Folio FT

8-11-6

W/O:		WORK ORDER CHANGES						
DATE	STEP	PROCEDURE CHANGE		By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

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Part Number: D407667205

Job Number:



Seq. #:	Machine Or Operation:	Description :
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5.0 QC15

DIMENSIONAL CHECK OF X-TUBES



Comment: DIMENSIONAL CHECK OF X-TUBES

08-11-07 ①

6.0 CROSSTUBES

CROSSTUBES RESOURCE 1



Comment: LANDING GEAR RESOURCE 1

MB 08-11-10

1-Drill pilot holes in tube using drill Jig DT8583 & DT8584 as per Dwg D407-667-245. Drill all (3) top holes.

2-Drill and Ream all holes in tube to finish size using drill Jig DT8583 & DT8584 as per Dwg D407-667-245. Check dimensions between holes on all four sides.

3-Flip tube and switch drilling Jigs from right to left, left to right. Locate Jigs off existing holes using "T" pins.

4-Drill pilot holes using drill Jig DT8583 & DT8584 as per Dwg D407-667-245. Drill only the top (2) holes.

5-Drill & ream the top (2) holes to finish size using drill Jig DT8583 & DT8584 as per Dwg D407-667-245

6-Drill Aft rivet holes using drill Jig DT8789 as per Dwg D407-667-245. Note: Aft side has 3x top holes.

7-Drill Fwd rivet holes using drill Jig DT8789 as per Dwg D407-667-245. Drill only the top (3) holes.

8-C'sink holes as per Dwg D407-667-245. Allow rivet to sit below surface to compensate for paint.

9-Deburr & Inspect for surface damage. Repair damage within limits as per Dwg D407-667-245

10- Scribe tube to identify on the inner chamfer in the cuff D# and B#

MB 08-11-10

7.0 HAND FINISHING1

HAND FINISHING RESOURCE #1



Comment: HAND FINISHING RESOURCE #1

Chemical Conversion Coat as per QSI 005 4.1

MB 08-11-11

8.0 QC3

INSPECT POWDER COAT/CHEMICAL CONVERSION



Comment: INSPECT POWDER COAT/CHEMICAL CONVERSION

08-11-11 ①

9.0 QC5

INSPECT WORK TO CURRENT STEP



Comment: INSPECT WORK TO CURRENT STEP

08-11-11 ①

W/O:		WORK ORDER CHANGES						
DATE	STEP	PROCEDURE CHANGE		By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

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			Initial Chief Eng	Action Description Chief Eng				

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Job Number: 41042

Part Number: D407667205

Job Number:



Seq. #:	Machine Or Operation:	Description :
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10.0	OUTSIDE SERVICE	OUTSIDE SERVICES
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Comment: Sub-Contracting OUTSIDE SERVICES  
Liquid Penetrant Inspection as per QSI 038Or  
Issue P/O: 2627 LPI as per ASTM 1417  
Level 2 Attach copy of NDT results to work order

*C208/11/19 ①*

11.0	PACKAGING 1	PACKAGING RESOURCE #1
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Comment: PACKAGING RESOURCE #1  
Inspect for transit damage  
Ensure copy of NDT results attached to work order.

12.0	QC5	INSPECT WORK TO CURRENT STEP
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Comment: INSPECT WORK TO CURRENT STEP

*28/11/21 ②*

13.0	SPRAY PAINTING	SPRAY PAINTING
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Comment: SPRAY PAINTING

1-Prime inside and outside crosstube as per QSI 005 4.2

2-Paint outside crosstube with White Imron as per QSI 005 4.2

*ml 08 11 26 ①*

14.0	QC14	INSPECT SPRAY PAINT
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Comment: Inspect Spray Paint  
Wrap in plastic bag to protect from scratches

*081201 ①*

15.0	D2856400	Abrasion Strip
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Comment: Qty.: 1.3524 f(s)/Unit Total : 1.3524 f(s)  
Pick:

Qty	Part number	Description	Batch
2	D2856-400(Cut to 7.73")	Abrasion Strip	<u>37667</u>

*ml 08 12 01*

16.0	D2873043	Nut Plate Assembly
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Comment: Qty.: 2.0000 Each(s)/Unit Total : 2.0000 Each(s)  
Pick:

Qty	Part number	Description	Batch
2	D2873-043	Nut Plate	<u>40218<sup>41</sup> / 41988<sup>41</sup></u>

*27 08-11-19*

W/O:		WORK ORDER CHANGES						
DATE	STEP	PROCEDURE CHANGE		By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
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Job Number: 41042

Part Number: D407667205

Job Number:



Seq. #:

Machine Or Operation:

Description:

17.0

D2873045

Nut Plate Assembly



Comment: Qty.: 2.0000 Each(s)/Unit Total: 2.0000 Each(s)

Pick:

Qty Part number Description Batch

2 D2873-045 Nut Plate 41987

PT 08-11-19

18.0

D28941

2.750 Support



Comment: Qty.: 1.0000 Each(s)/Unit Total: 1.0000 Each(s)

Pick:

Qty Part number Description Batch

1 D2894-1 Support 43713

ml 08 12 01

19.0

D31901

Chafing Shield



Comment: Qty.: 2.0000 Each(s)/Unit Total: 2.0000 Each(s)

Pick:

Qty Part number Description Batch

2 D3190-1 Chafing Shield 37969

ml 08 12 01

20.0

D3595

Rubber Cushion (per sq ft)



Comment: Qty.: 0.0246 sf(s)/Unit Total: 0.0246 sf(s)

Rubber Cushion

2X .750" X 4.30"

Batch: 41108

ml 08 12 01

21.0

MS20601AD4W8

RIVET



Comment: Qty.: 14.0000 Each(s)/Unit Total: 14.0000 Each(s)

Pick:

Qty Part number Description Batch

14 MS20601AD4W8 Rivet 109297

PT 08-11-19

22.0

MS2192022

Clamp(per MIL-DTL-8783C)



Comment: Qty.: 4.0000 Each(s)/Unit Total: 4.0000 Each(s)

Pick:

Qty Part number Description Batch

4 MS21920-22 Clamp 108187

ml 08 12 01

W/O:		WORK ORDER CHANGES						
DATE	STEP	PROCEDURE CHANGE		By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

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Job Number: 41042

Part Number: D407667205

Job Number:



Seq. #:	Machine Or Operation:	Description :
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23.0	MS2192025	Clamp(per MIL-DTL-8783C)
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Comment: Qty.: 2.0000 Each(s)/Unit Total : 2.0000 Each(s)

Clamp(per MIL-DTL-8783C)

Batch: 109644

ml 08 12 01

24.0	CROSSTUBES	CROSSTUBES RESOURCE 1
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Comment: LANDING GEAR RESOURCE 1

1-Install abrasion strips as per QSI 035 using DT8674. Install chafing shield as per Dwg D407-667-245.Note:  
(3) top holes should be facing up.

2- Lightly scuff the bonded area using a 320 grit sand paper and clean the area with 41058 wash 'n' wipe

3-Install support with magnobond and install clamps as per Dwg D407-667-245 using installaiton jig DT9025.

Torque clamps to 80-100 in lb

A/R Magnobond

Batch: 109900

EXP: 02/2010

4-Install nut plates as per Dwg D407-667-245. Touch-up rivet heads with Imron paint.

08-11-19

25.0	QC5	INSPECT WORK TO CURRENT STEP
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Comment: INSPECT WORK TO CURRENT STEP

26.0	PACKAGING 1	PACKAGING RESOURCE #1
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Comment: PACKAGING RESOURCE #1

Pick Packing Kit

27.0	AN534A	Bolt
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Comment: Qty.: 4.0000 Each(s)/Unit Total : 4.0000 Each(s)

Bolt

Batch: M109061

8/12/3

(X)

SP

W/O:		WORK ORDER CHANGES						
DATE	STEP	PROCEDURE CHANGE		By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
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Job Number: 41042

Part Number: D407667205

Job Number:



Seq. #:	Machine Or Operation:	Description :
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28.0	MS21042L5	Nut
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Comment: Qty.: 4.0000 Each(s)/Unit Total : 4.0000 Each(s)

Nut

Batch: M109287

sd

29.0	AN510A	Bolt
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Comment: Qty.: 10.0000 Each(s)/Unit Total : 10.0000 Each(s)

Pick:Packing Kit

Qty Part number

Description Batch

10 AN5-10A

Bolt

M109282

sd

30.0	AN532A	Bolt
------	--------	------



Comment: Qty.: 4.0000 Each(s)/Unit Total : 4.0000 Each(s)

Pick:Packing Kit

Qty Part number

Description Batch

4 AN5-32A

Bolt

M109282

sd

31.0	AN960JD516	Washer
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Comment: Qty.: 18.0000 Each(s)/Unit Total : 18.0000 Each(s)

Pick:Packing Kit

Qty Part number

Description Batch

18 AN960JD516

Washer

M109282

8/12/13

(X)

sd

32.0	QC4	INSPECT 100% KITS FOR COMPLETENESS
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Comment: INSPECT 100% KITS FOR COMPLETENESS

5008/12/03 (X)

33.0	PACKAGING 1	PACKAGING RESOURCE #1
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Comment: PACKAGING RESOURCE #1

Identify and in kanban rack

Location:

Rev E

8/08/12/03 (X)

sd

34.0	QC21	FINAL INSPECTION/W/O RELEASE
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Comment: FINAL INSPECTION/W/O RELEASE

08/12/04

Job Completion



WKF 08-12-03

W/O:		WORK ORDER CHANGES						
DATE	STEP	PROCEDURE CHANGE		By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

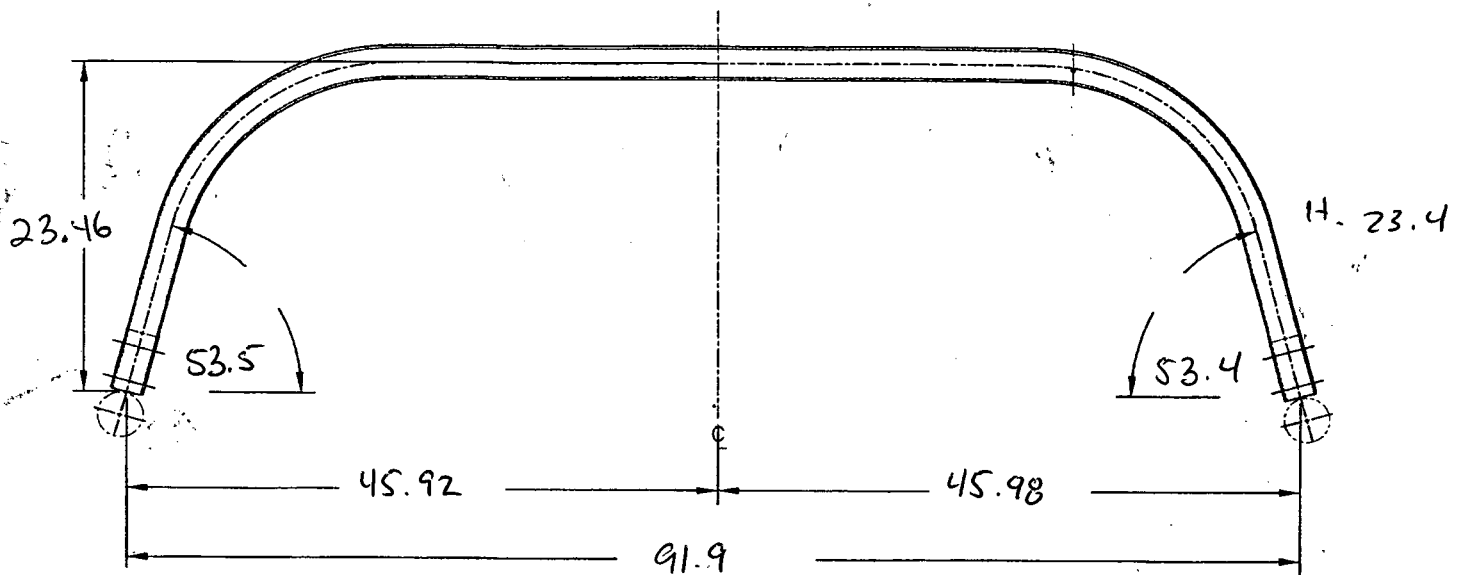
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DATE	STEP	Description of NC Section A	Corrective Action		Sign & Date	Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng				

**NOTE:** Date & initial all entries

<b>DART AEROSPACE LTD</b>		<b>Work Order:</b> 41042
<b>Description:</b> Crosstube High Aft (407)		<b>Part Number:</b> D407-667-205
<b>Inspection Dwg:</b> D407-667-245	<b>Rev:</b> D E	<b>Page 1 of 1</b>

06.06.18

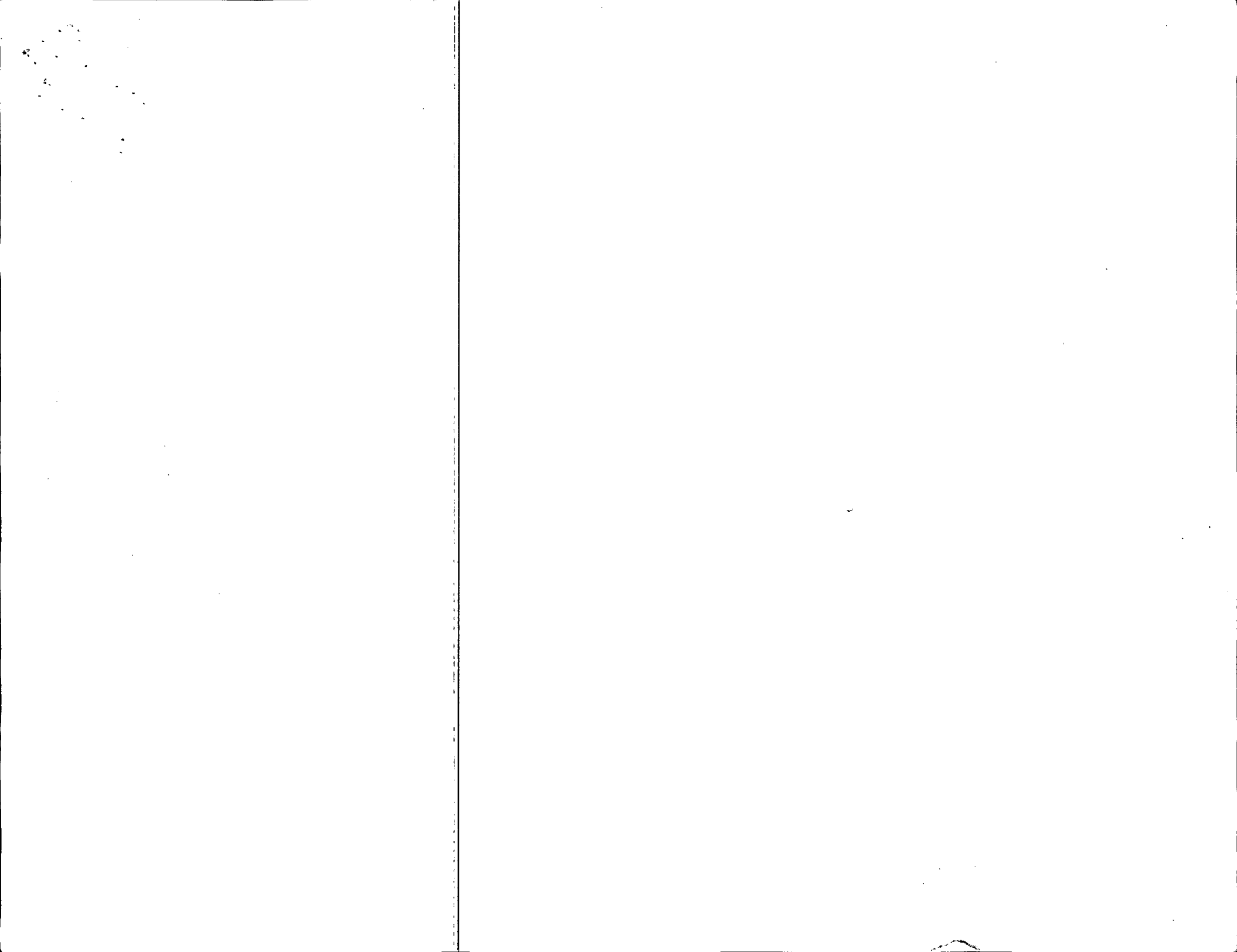
Required Dimension	Min	Max
Height	23.46	23.58
1/2 Span	45.86	45.98
Angle	54	56
Total Span	91.72	91.96



Comments

QC15 Inspection	1
Date	06.11.07

Rev	Date	Change	Revised by	Approved
A	07.02.06	New Issue	KJ/JM	



Item	QTY -245	PART NUMBER	DESCRIPTION
1	X	D407-667-245	CROSSTUBE ASSEMBLY (407 HIGH AFT)
2	1	D6011-115	CROSSTUBE
3	2	D2856-400-773	ABRASION STRIP
4	2	D2873-043	NUT PLATE
5	2	D2873-045	NUT PLATE
6	1	D2894-1	SUPPORT
7	2	D3190-1	CHAFING SHIELD
8	2	D3595-063-430	RUBBER CUSHION
9	14	MS20601AD4W8	RIVET (OR NAS9302B-4-8)
10	4	MS21920-22	CLAMP
11	2	MS21920-25	CLAMP (OR MS21920-24)
12	A/R	MAGNOBOND 6398	ROCKWELL SPECIFICATION RBO-120-023 ADHESIVE (TEXTRON/BELL SPEC. 299-947- 100, TYPE II, CLASS 2 ADHESIVE)





# GENERAL NOTES:

- MATERIAL: MANUFACTURED FROM D6011-115  
FINISHED LENGTH = 112.91±0.020
- FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1  
PRIME INSIDE AND OUTSIDE PER DART QSI 005 4.2  
PAINT OUTSIDE PER DART QSI 005 4.2
- TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED.
- UNITS: INCHES UNLESS OTHERWISE NOTED.
- BREAK SHARP EDGES: 0.005 TO 0.010 MAX.
- IDENTIFICATION: SCRIBE DART PART NUMBER "D407-667-245" AND BATCH NUMBER ON INSIDE OF CUFF USING VIBRATING STYLUS.
- WEIGHT: 27.7 lbs
- PART IS SYMMETRIC ABOUT CENTERLINE.
- RUN-OFF PART. BLEND OUT EDGE LONGITUDINALLY, TRANSITION SHOULD BE SMOOTH.
- BEND PROGRESSIVELY WITH A MINIMUM OF 6 PASSES. MAXIMUM TUBE FLATTENING DUE TO BENDING IS 6% BASED ON O.D.
- LIQUID PENETRANT INSPECT OUTSIDE SURFACE OF CROSSTUBE PER QSI 038.
- INSTALL D2894-1 CENTER SUPPORT USING A 0.03" TO 0.06" THICK LAYER OF MAGNOBOND 6398 PER QSI 015. LET CURE FOR 12 HOURS AFTER INSTALLATION AND PRIOR TO PACKAGING.
- INSTALL MS21920-25 CLAMPS WITH D3595-063-430 RUBBER CUSHIONS TO SECURE D2894-1 SUPPORT ON TOP SIDE OF THE CROSSTUBE. ENSURE CLAMPS ARE OPPOSITE CROSSTUBE SUPPORT.  
NOTE: MS21920-24 CLAMPS CAN BE USED TO ACCOMMODATE VARYING DIAMETERS. ENSURE THERE IS A MINIMUM OF 1.5 THREADS IN SAFETY ON THE NUTS.
- EXTREME CARE MUST BE TAKEN TO PROTECT THE OUTSIDE SURFACE OF THE TUBE. THE OUTSIDE SURFACE MUST BE SMOOTH AND FREE FROM SURFACE DEFECTS SUCH AS SCRATCHES, NICKS, OR DENTS. DEFECTS UP TO 0.005" MAY BE BLENDED OUT LONGITUDINALLY. CIRCUMFERENTIAL GRIND MARKS ARE UNACCEPTABLE.
- INSTALL D2856-400-773 ABRASION STRIP WITH A 0.13 (REF) GAP ON BOTTOM SIDE OF CROSSTUBE, PER QSI 035.
- INSTALL D3190-1 CHAFING SHIELDS SO THAT OVERLAP IS ON BOTTOM SIDE OF CROSSTUBE OPPOSITE D2894-1 SUPPORT.
- TORQUE CLAMPS 80 TO 100 IN-LB. ENSURE AT LEAST 1.5 THREADS ARE SHOWING IN SAFETY AND THAT NUT HAS NOT BOTTOMED-OUT AFTER TORQUING.

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WORK ORDER  
NO. 41042

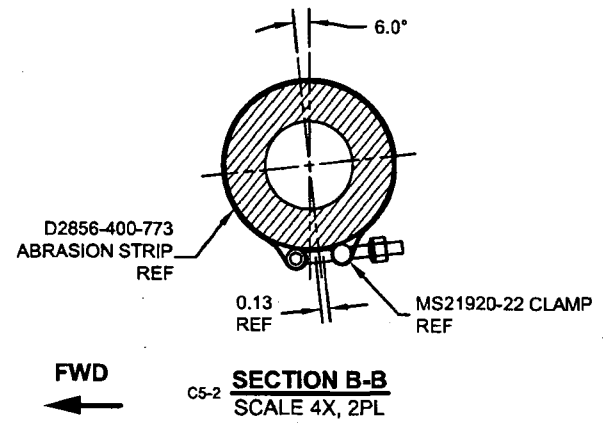
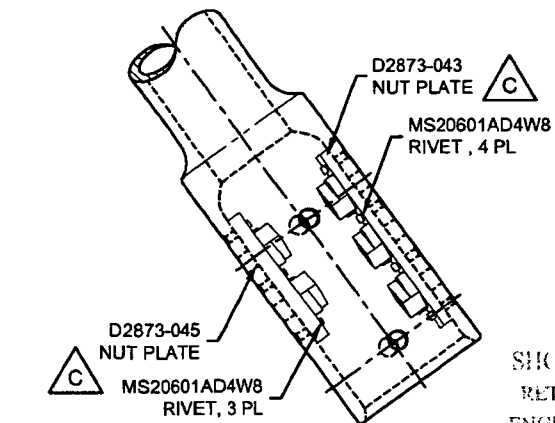
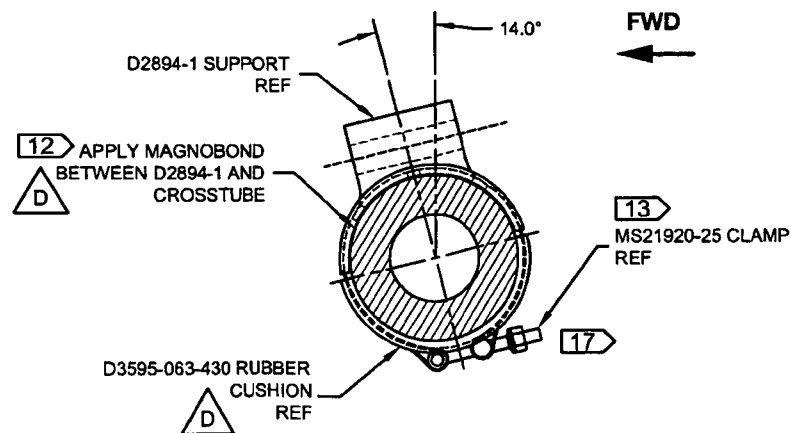
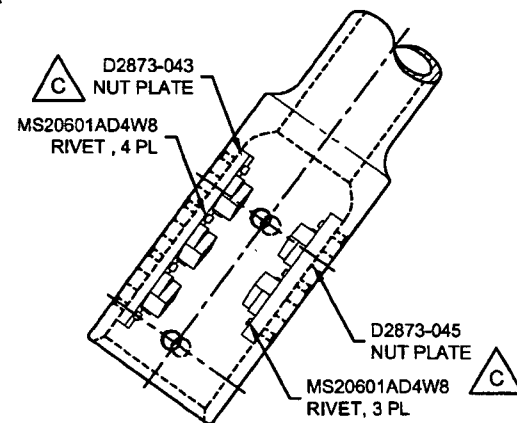
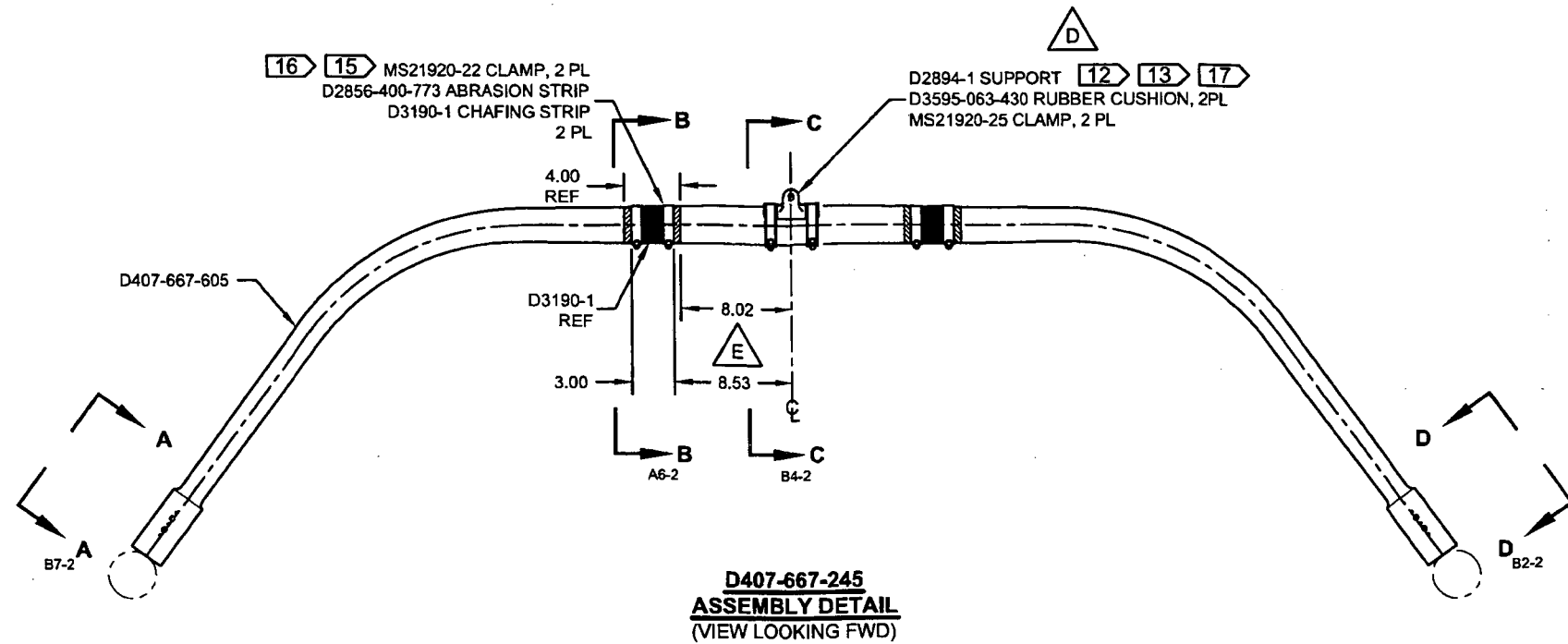
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08/11/12

F	REFORMAT NOTES TO NEW STANDARDS (ZN B8-1); RELOCATED FLAG # 6 (ZN A8-3) PER NCR 210; REMOVED REF. & ADD TOLERANCES (ZN C6-3, C4-3 & D2-3)	RF	08.11.06
E	8.02 AND 8.53 WERE 8.40 AND 8.90 (ZN D5-2); REORGANIZED VIEWS AND REFORMATED DRAWING TO CURRENT STANDARDS. REASONS: CLAMPS MOVED 0.375 TOWARD CL TO ELIMINATE INTERFERENCE WITH AIRCRAFT MOUNTS. REFERENCE: PAR#08-21 AND ECN#1225	MB	08.07.24
D	ADD VIEW FOR OEM SKID HOLES, ROTATE ORIENTATION OF CLAMPS SECTION F-F, REMOVE -851 ABRASION STRIP, ADD MAGNOBOND 6398, ADD CUSHION	PH	07.02.07
C	ADD HOLES AND NUT PLATES FOR COMPATIBILITY WITH BHT/AA SKIDTUBES	PH	05.07.26
B	ADD CHAFING SHIELD	CP	03.05.21
A	NEW ISSUE	CP	02.05.13
REV.	DESCRIPTION	BY	DATE

DESIGN		<b>DART AEROSPACE LTD</b> HAWKESBURY, ONTARIO, CANADA	
DRAWN	RF		
CHECKED		DRAWING NO.	REV. F
MFG. APPR.		D407-667-245	SHEET 1 OF 4
APPROVED		TITLE	SCALE
DE APPR.		CROSSTUBE ASS'Y (407 HIGH AFT)	NT
DATE	08.11.06	COPYRIGHT © 2002 BY DART AEROSPACE LTD <small>THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.</small>	









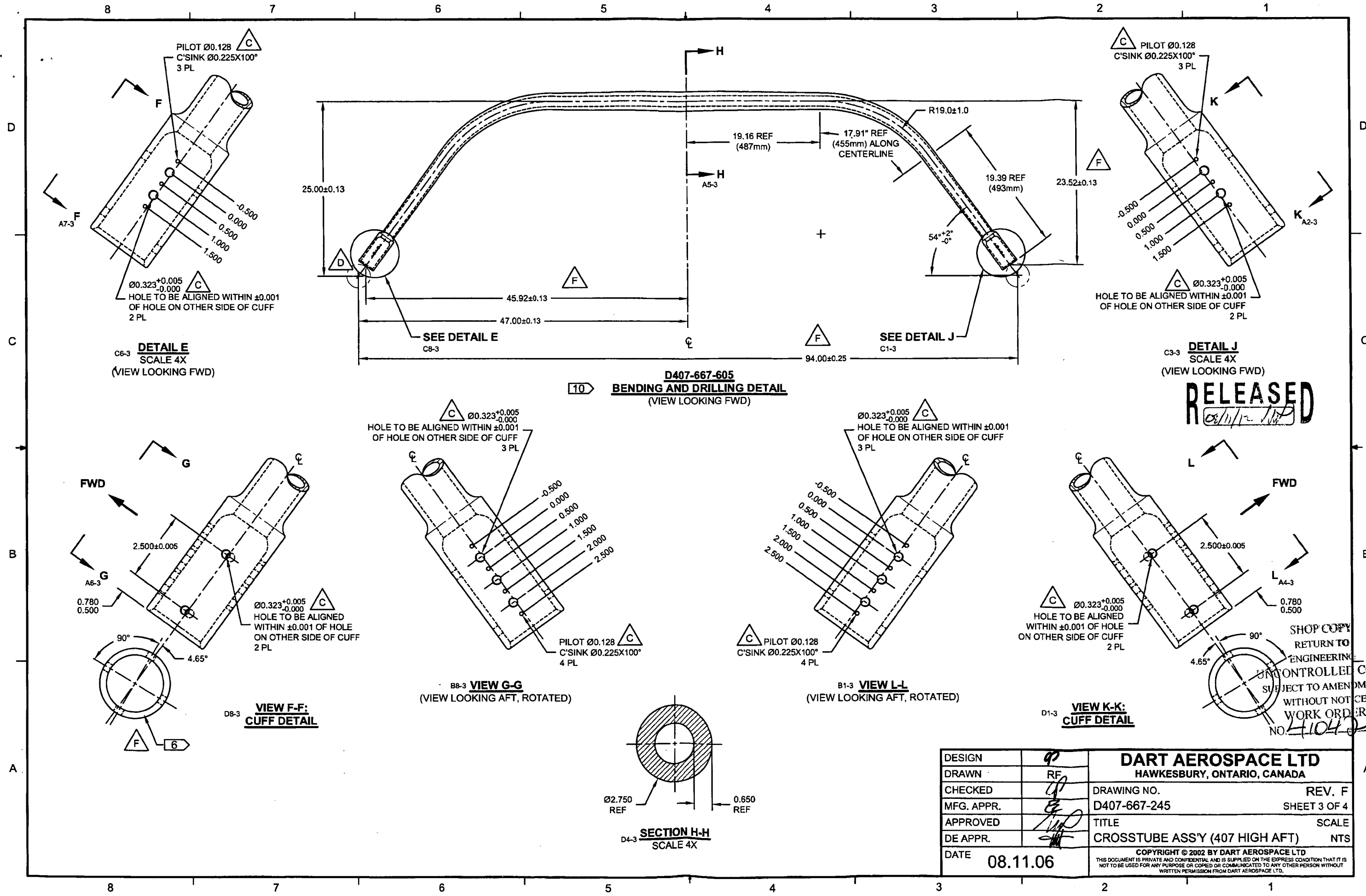


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**RELEASED**  
08/11/06

DESIGN	92	<b>DART AEROSPACE LTD</b>	
DRAWN	RF	<b>HAWKESBURY, ONTARIO, CANADA</b>	
CHECKED		DRAWING NO.	REV. F
MFG. APPR.		D407-667-245	SHEET 2 OF 4
APPROVED		TITLE	SCALE
DE APPR.		CROSSTUBE ASS'Y (407 HIGH AFT)	NTS
DATE	08.11.06	COPYRIGHT © 2002 BY DART AEROSPACE LTD	
		THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.	





**D407-667-605**  
**BENDING AND DRILLING DETAIL**  
(VIEW LOOKING FWD)

**DETAIL J**  
SCALE 4X  
(VIEW LOOKING FWD)

**DETAIL E**  
SCALE 4X  
(VIEW LOOKING FWD)

**VIEW F-F:**  
**CUFF DETAIL**





**VIEW G-G**  
(VIEW LOOKING AFT, ROTATED)

**VIEW L-L**  
(VIEW LOOKING AFT, ROTATED)

**VIEW K-K:**  
**CUFF DETAIL**

**SECTION H-H**  
SCALE 4X

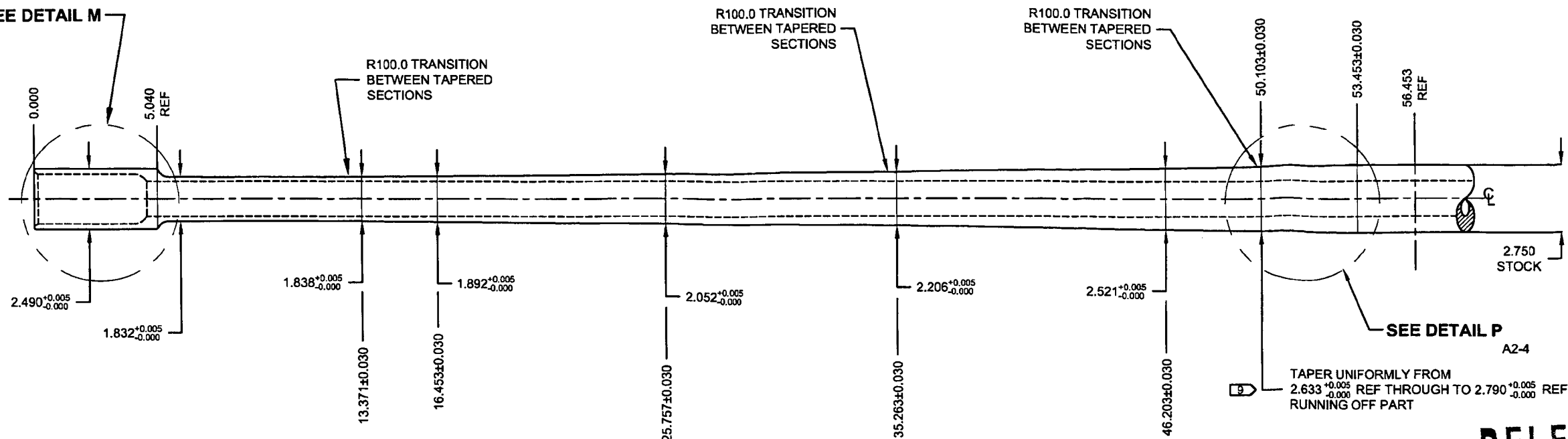
**RELEASED**  
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DESIGN	97	<b>DART AEROSPACE LTD</b>	
DRAWN	RF	<b>HAWKESBURY, ONTARIO, CANADA</b>	
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MFG. APPR.		D407-667-245	SHEET 3 OF 4
APPROVED		TITLE	SCALE
DE APPR.		CROSSTUBE ASS'Y (407 HIGH AFT)	NTS
DATE	08.11.06	COPYRIGHT © 2002 BY DART AEROSPACE LTD	
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SEE DETAIL M  
A7-4

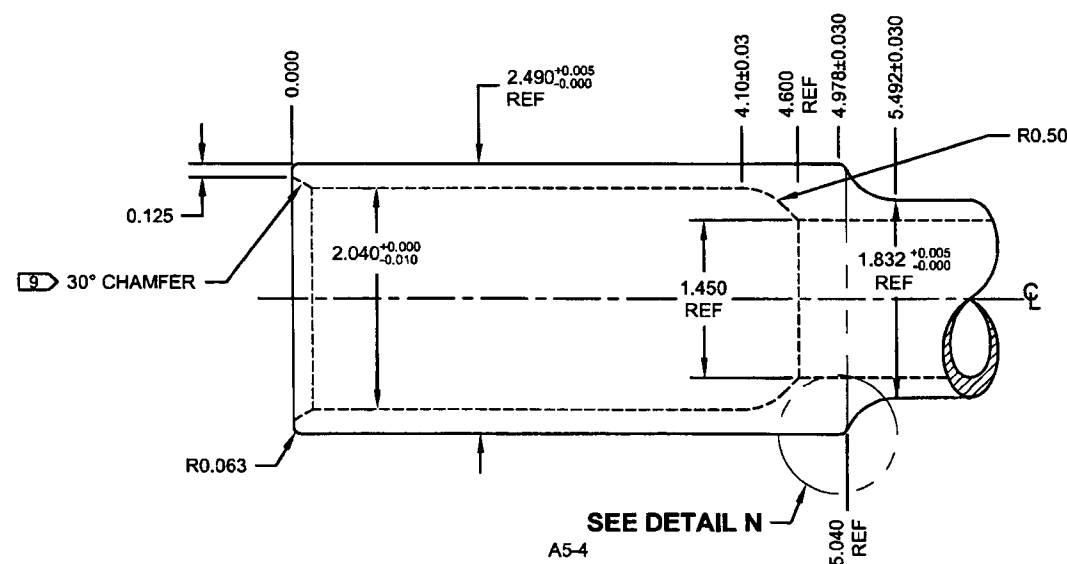


SEE DETAIL P  
A2-4

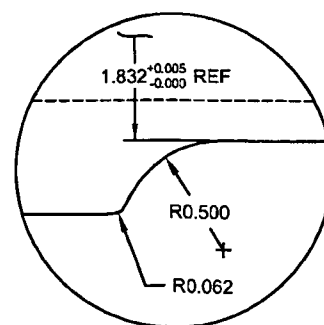
TAPER UNIFORMLY FROM  
2.633 (+0.005/-0.000) REF THROUGH TO 2.790 (+0.005/-0.000) REF  
RUNNING OFF PART

# D407-667-245 MACHINING DETAIL

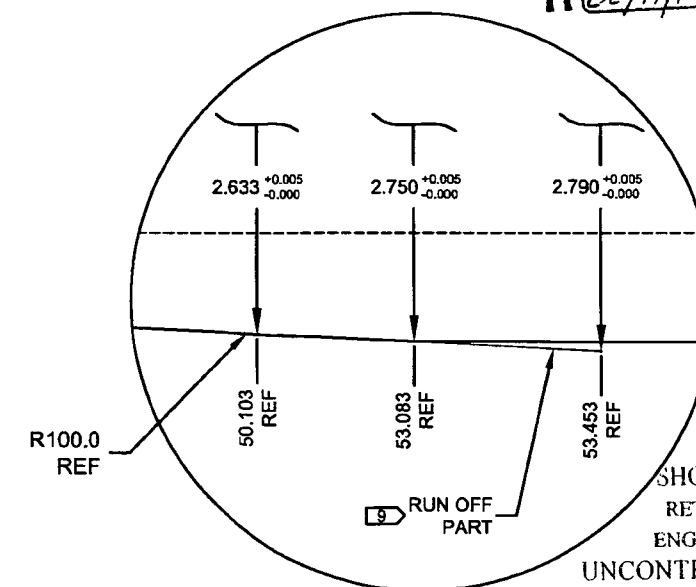
RELEASED  
08/11/12



D8-4 **DETAIL M: CROSSTUBE CUFF**  
SCALE 3X



B6-4 **DETAIL N: CUFF TRANSITION**  
SCALE 2X



C1-4 **DETAIL P: TAPER RUN-OFF**  
NOT TO SCALE

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MFG. APPR.	E	D407-667-245	SHEET 4 OF 4
APPROVED	Q	TITLE	SCALE
DE APPR.	Q	CROSSTUBE ASS'Y (407 HIGH AFT)	NTS
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## LIQUID PENETRANT TEST REPORT

P-08827

CLIENT DACT Aerospace DATE Nov. 19-2008 PAGE 1 OF 1  
 ATTENTION LINDA LACELLE ACUREN JOB NO. 188-08-1121 TIME AM ☒ PM ☐  
 ADDRESS 1270 ABERDEEN PO/NO. NO. WORK LOCATION SAME ADDRESS, SHOP.  
Waukegan, IL ACCEPTANCE STD. QST-038 REV/DATE 2005  
 PROJECT N/A  
 ITEM(S) EXAMINED 407 HIGH AFT X-TUBE ASSEMBLY, 407 FWD X TUBE  
212 X-TUBE, LOW STANDARD AFT.

JOB DESCRIPTION PROCEDURE NO. LT-1000X REV/DATE 12 NOV 07 TECHNIQUE NO. LT-1000X REV/DATE NOV. 07 08  
 PART NO. D212-664-247/D407667265/D407667105 MATERIAL ALODINED ALUM. THICKNESS  
 SCOPE 100% EXTENDED WET FLUORESCENT INSPECTION  
ON UNITS

TEST DETAILS  
 METHOD ☒ FLUORESCENT ☐ VISIBLE ☒ WATER WASH ☐ SOLVENT REMOVABLE ☐ POST EMULSIFIED  
 FAMILY BRAND 2LG7 MINIMUM DWELL TIME 10 MIN. BLACK LIGHT S/N 8171 ☒ OUTPUT > 1000  $\mu$ W/cm<sup>2</sup> ☐ AMBIENT < 2 fc  
 PENETRANT REMOVER H2O MINIMUM DRY TIME >10 MIN. LIGHTING EQUIP. ☐ FLASHLIGHT ☐ TROUBLELIGHT ☐ OUTPUT > 100 fc @ SURFACE  
 DEVELOPER SK052 MINIMUM DWELL TIME 10 MIN. OTHER CAL FEB 12-08  
 DEVELOPER TYPE ☐ NON AQUEOUS ☐ AQUEOUS ☐ DRY LIGHT METER S/N CAL DUE DATE

TEST SURFACE  
 SURFACE CONDITION ☐ AS GROUND ☐ AS WELDED ☒ MACHINED ☐ SHOT BLASTED ☐ CLEAN BARE METAL  
 SURFACE TEMPERATURE ☐ < -4°C/20°F ☐ -4°C/20°F TO 10°C/50°F ☐ 10°C/50°F TO 52°C/125°F ☐ > 52°C/125°F

RESULTS- ☐ METRIC ☐ IMPERIAL

ITEM	COMMENTS	ACCEPT	REJECT
JB	UNITS		
41042		/	
42878		/	
43340		/	
41043			
No INDICATIONS			
WERE FOUND ON THESE			
PARTS THAT WERE			
EXAMINED			

## Scope of Services

The agreement of Acuren Group Inc. to perform services extends only to those services provided for in writing. Under no circumstances shall such services extend beyond the performance of the requested services. It is expressly understood that all descriptions, comments and expressions of opinion reflect the opinions or observations of Acuren Group Inc. based on information and assumptions supplied by the owner/operator and are not intended nor can they be construed as representations or warranties. Acuren Group Inc. is not assuming any responsibilities of the owner/operator and the owner/operator retains complete responsibility for the engineering, manufacture, repair and use decisions as a result of the Standard of Care.

In performing the services provided, Acuren Group Inc. uses the degree, care and skill ordinarily exercised under similar circumstances by others performing such services in the same or similar locality. No other warranty, expressed or implied, is made or intended by Acuren Group Inc.

## SIGNATURES

CLIENT REPRESENTATIVE Jason Hunsch DTR # E-20057  
 TECHNICIAN (SIGNATURE) [Signature] SIGNATURE  
 NAME (PRINT): Mike Johnson REPORT  
 CGSB LEVEL II SNT LEVEL CGSB REG. NO. 0666 2<sup>ND</sup> TECHNICIAN  
 CGSB LEVEL CGSB REG. NO. SNT LEVEL CGSB REG. NO.

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